trated for two situations in Figures 32 and 33 as plots of lines of constant density in a two dimensional tank where points with the same density are connected by straight lines for easier identification, although the actual lines of constant density are nonlinear.

The initial density profile for the second phase of experimentation was determined in the same way and is shown in Figure 34, along with a stepwise approximation to the interface for the profiles after the wind had been blowing for 1 and 5 hours. The density of the top layer and the position of the interface were measured; below the interface the density profile was assumed unchanged, which is a reasonable assumption based on the data from the initial experiments.

Figure 35 is the mean velocity profile for the unstratified situation, as well as the stratified case for two different times during the run. This illustrates the change in the flow which takes place as the interface is eroded. Figure 36 is the rms velocity profile, $\{(u'^2)^{1/2}$ vs. $z\}$ for the same situations as Figure 35, but does not show much more than a general trend of decreasing magnitude just below the surface.

A logarithmic plot of height above the water surface vs. mean wind velocity is shown in Figure 36. This was used to determine the shear velocity in air u_{*_a} directly, and the shear velocity in water from (Shemdin, 1972)

$$u_{*_w}^2 = \frac{\rho_a}{\rho_w} u_{*_w}^2$$

The turbulent velocity fluctuations u' were analyzed on the spectrum analyzer. The output is plotted in Figures 38 through 41 as the turbulent energy spectra in volt^2-sec vs. frequency. Figures 38, 39, 40 and 41 are the spectra at depths of 2 cm, 10 cm, 15 cm, and 33 cm, respectively. Each figure shows the difference in the horizontal component of the turbulent